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Procedia Economics and Finance 3 (2012) 527 – 535

Procedia
Economics and Finance

www.elsevier.com/locate/procedia

Emerging Markets Queries in Finance and Business

Scoring method applied to financing programmes in the context of sustainable development

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Abstract

At present, Romania is benefiting of its first post-accession programming period, having the possibility to access significant funding allocated for development and reducing disparities to other Member States, but at the same time, it is required a considerable effort not only to meet the national objectives, but also the additional ones imposed at the Community level. EU utilizes several financial support instruments, which in our country, are materialized in seven main operational programmes and two complementary actions. On the other hand, by developing and implementing the Europe 2020 Strategy, EU require each Member State to meet several clear objectives, through a sustainable, smart and inclusive development. In this paper, we analyze the influence and contribution of each EU financing programme on promoting and supporting the sustainable development in Romania. Therefore, we are applying and adapting the Scoring method, in order to evaluate and prioritize the importance of the financing programmes in terms of specific investments for sustainable development, taking into account all three dimensions of sustainable development: economic, social and ecological.

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Selection and peer review under responsibility of Emerging Markets Queries in Finance and Business local organization.

Keywords: sustainable development, financing programme, Europe 2020, Scoring Method

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1. Introduction

1.1. Investment and sustainable development

“Sustainable development is one of the nicest, most generous and comprehensive human ideals”. Popa and Popa, 2006

In the past 30 years, the global GDP has doubled, but the economic growth was based on the irrational use of resources, which have been dramatically depleted. The current economic growth rate can not be maintained, and a deadlock solution is needed and can be represented by the sustainable development. Currently, Romania can support sustainable development through investment projects financed by grants.

The investment represents expenses that will most influence the future, but it is necessary that its influence is not only positive, but also it has to overcome the current efforts to achieve the investment. In order to obtain a funding, the applicant must meet certain conditions and must achieve certain economic, social and environmental indicators.

Europe 2020 Strategy proposes a vision for Europe's social market economy for the next decade and is based on three priority areas that are interrelated and mutually reinforcing: smart growth - developing an economy based on knowledge and innovation; sustainable growth - promoting a competitive economy with low carbon emission and efficient use of resources, and inclusive economic growth - promoting a highly labor employment, generating social and territorial cohesion.

1.2. The Scoring Method

The Scoring Method is known as a method of evaluating the risk profile of an applicant in bank crediting activity, and is considered one of the most modern techniques for the "assessment and evaluation of credit applicants' characteristics, which fundaments their hierarchy, resulting in a score or an automatically calculated average". Mihaescu, 2008

The method is based on the statistical techniques of discriminant analysis, being individually calculated for each credit applicant. It is part of economic and financial analysis, representing a prediction tool, highlighting strengths and weaknesses of a company. Although this method is well known for its use in banking, is also adapted and used in other areas:

- Marketing: to evaluate database by assigning a specific score for each consumer segment, according to their likely commercial reaction;
- Knowledge assessment: to calculate a test mark when the number of points awarded for a correct response is not identical for each test item and it is required that the final note considers the responses relative importance;
- Project Management: to establish scores corresponding to the project parameters;
- Evaluation and selection of investment projects: a project evaluation committee awards points basing on a scoring scale, so the projects are prioritized according to the weighted selection criteria.

According to Robu and Georgescu, 2007, the first scoring models have been created since 1968 by the American economist Altman and French economists Connan and Holder in 1978. Each bank customizes its evaluation method, based on existing client portfolio and objectives. Currently, according to Morosan, 2006, the most complex scoring method is considered to be the Balances Central method from the Bank of France.

The scoring model consists of calculating a multiple discriminant score function (Z):

$$Z = a \cdot x_1 + b \cdot x_2 + c \cdot x_3 + \dots + z \cdot x_n \quad (1)$$

where x_1, \dots, x_n are the rates / criteria engaged in the formula, and a, b, \dots, z are weights of significance of each rate / criteria.

2. Scoring method for funding programmes

In order to meet the national objectives of sustainable development, established in accordance with the Europe 2020 objectives, we consider necessary that each investment project financed by grants to include aspects of all three sustainable development dimensions: economic, ecological and social. Thus, in this paper we aim to analyze the support of financing programmes to include in projects the three sustainable development dimensions, and to prioritize the funding lines using a scoring model.

2.1. Creating the model

To create the Scoring model for financing programmes, we covered the following main stages:

- establishing criteria to characterize the analysed item;
- grouping criteria into categories depending on their profile;
- establishing the aggregation system to obtain a common rating for the metric, to characterize its global position comparing to other items.

We defined six broad categories and for each category, we established a weight reflecting the importance of that category in the total score:

Table 1. Categories and their weight

No.	Category	Weight
1	Method of preparation and submission of project	10%
2	Influence on the awareness level of population	20%
3	Programmatic documents	15%
4	The considering level assigned to sustainable development	30%
5	Ensuring the sustainability aspect of sustainable development	10%
6	Type of investment financed	15%
	TOTAL	100%

Assigning the weights for each major category of criteria was developed by a panel of experts. The experts involved in this procedure have relevant experience in developing and implementing grant-funded projects and have sustainable development knowledge advanced level, but also sustainable development experts are involved. Based on these categories and weights, we built the scoring model function „Z”:

$$Z = C_1 \cdot 0,1 + C_2 \cdot 0,2 + C_3 \cdot 0,15 + C_4 \cdot 0,3 + C_5 \cdot 0,1 + C_6 \cdot 0,15 \tag{2}$$

where C_1, \dots, C_n are scores of the categories listed above.

Each category contains a total of four subcategories (criteria), the most relevant for that category:

Table 2. Categories and subcategories

No.	Category	Subcategories (Criteria)
1	Method of preparation and submission of project	1.1. Requesting to elaborate cost-benefit analysis or similar 1.2. Requesting to develop a study to assess the environmental impact 1.3. Submitting the project 1.4. Site visits
2	Influence on the awareness level of population	2.1. Integrated approach of sustainable development in the Applicant Guide 2.2. Exemplifying the possibility of implementing sustainable development issues 2.3. Information, promotion and publicity of the objective of sustainable development

No.	Category	Subcategories (Criteria)
3	Programmatic documents	2.4. Highlighting the need and opportunity to include sustainable development issues in project 3.1. SEA procedure performed (Strategic Environmental Assessment) 3.2. Effects identified by the SEA 3.3. Sustainable development indicators (SDI) among the monitoring indicators 3.4. Monitoring SDI
4	The considering level assigned to sustainable development	4.1. Sustainable development issues in the eligibility criteria 4.2. Sustainable development issues in the selection criteria 4.3. Facilities for including sustainable development activities 4.4. Increasing complexity of the project if including sustainable development activities
5	Ensuring the sustainability aspect of sustainable development	5.1. Sustainable development as an element in the progress report 5.2. Sustainable development as an element in the subsequent reports (sustainability reports) 5.3. Multiplying the sustainable development effects 5.4. Funding for publicity and promoting sustainable development
6	Type of investment financed	6.1. Social field project 6.2. Project on environmental protection 6.3. Financing of investments with negative environmental impact 6.4. Indirect effects of financed investments

The maximum score of each category ($C_{i, i=1...6}$) that can be obtained is 100, and the 4 sub-components have equal weight: 25 points. For each criterion we established a scale of values depending on the degree of fulfillment of that criterion. Thus, we defined 2 to 5 scoring options, assigning the score according to the number of such possibilities, from 0 to 25. Example below on how to score, for the first criteria:

Table 3. Criteria scoring (criteria 1.1)

No.	Criteria/ Scoring option	Score
1.1.	Requesting to elaborate cost-benefit analysis or similar	
a	Mandatory condition to elaborate cost-benefit analysis for high value projects (over 1 million Euros) and a similar analysis for other projects	25
b	Requesting to develop a financial analysis application (if necessary) and a minimum analysis of the effects on society and the environment	12.5
c	Not requesting a cost-benefit analysis or financial analysis and a minimum analysis of the effects on society and the environment	0

After calculating the score of each funding line, we can prioritize these funding lines and we can include them in one of the three areas of impact on sustainable development:

- area I: projects with little impact on sustainable development: from 0 to 30 points;
- area II: projects with medium impact on sustainable development: from 30 to 70 points;
- area III: projects with high impact on sustainable development: over 70 points;

The categories, subcategories and scoring options were set after a previous research, based on a questionnaire in order to identify the influence between the use of grants and supporting the sustainable development in such projects. The questionnaire was addressed exclusively to beneficiaries or applicants for grants. After application of 75 of these questionnaires, we centralized the responses and we included in the scoring model the reasons for including or not sustainable development issues in investment projects.

The most important aspects in building the model are referring to the influence of programmatic documents: Guidelines for Applicants, Financing Programme, Framework-Document for Implementation of the Programme, on the financing applicant. It is necessary that the approach of sustainable development is correct and complete, describing the need and opportunity to achieve all the dimensions of sustainable development in an investment project: economic, ecological and social. Given the insufficient knowledge of the citizens in this

area, it is needed an explicit and intense promotion of sustainable development issues. Promotion can be done both through information and publicity, and by providing a significant score for such investments, or their inclusion in the eligibility criteria and funding activities with positive, neutral or temporary and reduced negative impact on social and environmental dimensions of sustainable development. On the other hand, is important if before the implementation of the financing programme, the procedure of Strategic Environmental Assessment (SEA) has been performed, in order to analyze any type of potential impact of funded projects on the environment.

2.2. Applying the model

In order to illustrate the practical application of the developed model, we chose six financing lines of the most frequently accessed, from all the major European funding programmes:

- National Rural Development Programme (NRDP): Measure 312 “Support for the Creation and Development of Micro-enterprises”
- Sectoral Operational Programme - Increase of Economic Competitiveness (SOP IEC): Key Area of Intervention 111 „Productive and environment friendly investments and preparation for market competition, especially of SMEs”
- Regional Operational Programme (ROP): KAY 4.3 „Support the development of micro-enterprises”
- Sectoral Operational Programme - Human Resources Development (SOP HRD): KAY 6.1 „Developing social economy”
- Sectoral Operational Programme -Transport (SOPT): KAY 2.1 „Modernization and development of national road infrastructure”
- Sectoral Operational Programme Environment (SOP ENV): KAY 2.1. „Development of integrated waste management systems and extension of waste management infrastructure”

Table 4. Applying the Scoring Method

No.	Criteria/ Financing line	NRDP 312	SOP IEC 111	ROP 4.3	SOP HRD 6.1	SOPT 2.1	SOP ENV 2.1
1	Method of preparation and submission of project	37.5	62.5	37.5	56.25	75	81.25
2	Influence on the awareness level of population	25	50	50	50	25	87.5
3	Programmatic documents	100	50	75	50	75	100
4	The considering level assigned to sustainable development	25	25	25	75	0	100
5	Ensuring the sustainability aspect of sustainable development	0	75	75	75	25	75
6	Type of investment financed	43.75	43.75	37.5	81.25	18.75	81.25
	Z	37.8125	45.3125	45.625	65.3125	29.0625	90.3125

After analyzing the scores, SOP ENV 2.1. can be declared a program dedicated to the environmental dimension of sustainable development, having the most significant positive effects for the environment and for the health and living conditions of population. On the other side, SOPT 2.1. is situated in the area with low impact on sustainable development, involving the possibility that positive effects are covered by the negative ones, resulting adverse implications on sustainable development. The other financing lines analyzed are situated in the medium impact area. Considering the economic background, the low absorption of European funds and the insignificant effects on sustainable development, are leading to an absence of awareness for the sustainable development necessity and are placing our country in an early stage of sustainable development.

Respecting, protecting and caring for the environment, considered sustainable development, is a horizontal

objective of each grant programme. Also, the principle of equal opportunities is a second horizontal objective of these programmes. But addressing the two horizontal objectives separately is not correct and can lead to misinforming the population. Poor explicitation and low exemplifying in the Guidelines for Applicants are an important cause of the lack of sustainable development investment in projects.

3. Conclusions

Sustainable and responsible management of scarce and vital resources bears an obvious ethical dimension: the right of future generations to equally enjoy the common planetary natural heritage of humanity.

This paper presents a model of medium complexity to highlight the grants effects on sustainable development. Until now, no information on this issue is available. The importance of such a model lies in its results influence on the allocation decisions and funds distribution in different types of programs and investments, in order to ensure the state sustainable development. In Romania, we can refer to the next programming period 2014-2020, when it is necessary to take all measures to increase the absorption of European funds and their use must lead not only to economic development, but to a sustainable one, while also meeting the Europe 2020 Strategy objectives.

Future research may lead to increased model complexity by adding new scoring criteria and to eliminate the inconsistency of the partially subjective approach in assigning the weights for each major category of criteria, by using the panel of experts. Assigning these weights could be object of a new research, based on questionnaires and an econometric model for identifying and calculating the importance of each category.

Acknowledgements

This work was cofinanced from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/107/1.5/S/77213 „Ph.D. for a career in interdisciplinary economic research at the European standards” (DOCCENT).

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Appendix A. Criteria scoring

We further present the scoring model including all possibilities and scoring options for each criterion:

Table 5. Criteria scoring

No.	Criteria/ Scoring option	Score
1.1.	Requesting to elaborate cost-benefit analysis or similar	
a	Mandatory condition to elaborate cost-benefit analysis for high value projects (over 1 million Euros) and a similar analysis for other projects	25
b	Requesting to develop a financial analysis application (if necessary) and a minimum analysis of the effects on society and the environment	12.5
c	Not requesting a cost-benefit analysis or financial analysis and a minimum analysis of the effects on society and the environment	0
1.2.	Requesting to elaborate an environmental impact study	
a	Mandatory condition to elaborate an environmental impact study for projects with potential environmental impact	25
b	Requesting to develop a minimum analysis of the effects on environment	12.5
c	Not requesting any analysis of the effects on environment	0
1.3.	Submitting the project	
a	Fully electronic submission (online)	25
b	Electronic submission completed by sending a reduced number of documents	18.75
c	Physical submission of one original and up to one copy, along with the electronic version	12.5
d	Physical submission of one original and up to one copy	6.25
e	Physical submission of more than one original and one copy	0
1.4.	Performing on site visits	
a	On site visits before signing the contract not necessary	25
b	Performing the on site visit in case of project selection	12.5
c	Performing the on site visit in case of project eligibility	0
2.1.	Integrated approach of sustainable development in the Guidelines for Applicants	
a	Integrated approach of sustainable development: economic, ecological and social dimensions	25
b	Addressing sustainable development through the environmental dimension and considering the social dimension as a horizontal objective	12.5
c	The absence of defining the concept of sustainable development	0
2.2.	Exemplifying the possibility of implementing sustainable development	
a	Providing concrete examples and practical ideas, suggestions, recommendations, successful projects examples in programmatic documents	25
b	Reduced exemplification of these possibilities in the programmatic documents	12.5
c	Total absence of clarification	0
2.3.	Information, advertising and promotion of sustainable development	
a	Existing efforts of the financing institution to promote sustainable development objective (including promotion elements on the program / funding line web site, information and advertising in newspapers and / or other media, other types of advertising: flyers, brochures, posters etc)	25
b	Reduced efforts in promoting sustainable development objective	12.5
c	The absence of efforts to promote sustainable development objective	0
2.4.	Highlighting the need and opportunity to include sustainability issues in project	
a	The need and opportunity to include sustainability issues in the project - adequate described	25
b	The need and opportunity to include sustainability issues in the project – poorly described	12.5
c	The absence of description of the need and opportunity to include sustainability issues in project	0
3.1.	Performing the SEA procedure	
a	Previous performance of the SEA (Strategic Environmental Assessment) or similar	25
b	The absence of previous performance of the SEA or similar	0

3.2.	Effects identified by the SEA	
a	Predominantly positive effects	25
b	Predominantly neutral effects	12.5
c	Predominantly negative effects or no previous achievement of the SEA	0
3.3.	Monitoring indicators including sustainable development indicators (SDI)	
a	Existence of SDI (environmental and / or social indicators) among monitoring and evaluation indicators	25
b	The absence of SDI among monitoring and evaluation indicators	0
3.4.	SDI monitoring	
a	Monitoring the established SDI	25
b	The absence of monitoring the established SDI, the absence or unavailability of these indicators reports	0
4.1.	Sustainable development issues in the eligibility criteria	
a	Eligibility criteria include sustainable development issues	25
b	Minimum mandatory compliance with laws on environmental protection and social area	0
4.2.	Sustainable development issues in selection criteria	
a	Providing a significant score for sustainable development issues	25
b	Providing a insignificant score for sustainable development issues	12.5
c	Not providing any score for sustainable development issues	0
4.3.	Facilities for including sustainable development activities in the project	
a	Providing facilities for including sustainable development activities (higher financing rate etc.) in the project	25
b	No facilities provided for inclusion of sustainable development activities	0
4.4.	Increasing complexity of the project if including sustainable development activities	
a	Including sustainable development activities leads to an increased project complexity (supplementary budget, construction, special certifications etc.)	0
b	Including sustainable development activities doesn't change the project complexity	25
5.1.	Sustainable development issues as an element of the progress report	
a	The progress report includes monitoring aspects of sustainable development	25
b	The progress report does not include monitoring aspects of sustainable development or is not requested	0
5.2.	Sustainable development issues as an element in the subsequent report (sustainability report)	
a	The sustainability report includes monitoring aspects of sustainable development	25
b	The sustainability report does not include monitoring aspects of sustainable development or is not requested	0
5.3.	Multiplying the sustainable development effects	
a	Requesting for the project's sustainability to be described and to analyze the possibilities of multiplying the sustainable development effects	25
b	Not requesting a description of the multiplying possibilities of sustainable development effects	0
5.4.	Funding publicity and information activities to promote sustainable development	
a	Financing activities including advertising and information and mandatory condition to promote sustainable development issues	25
b	Financing a small number of advertising and information activities, the absence of financing or the absence of the mandatory condition of including these activities to promote sustainable development	0
6.1.	Social project	
a	Social project	25
b	Possibility of a dominant social component in the project	18.75
c	Possibility of an average social component in the project	12.5
d	Possibility of a reduced social component in the project	6.25
e	Failure existence of social components in the project	0
6.2.	Environmental protection project	
a	Environmental protection project	25
b	Possibility of a dominant environmental component in the project	18.75
c	Possibility of an average environmental component in the project	12.5
d	Possibility of a reduced environmental component in the project	6.25
e	Failure existence of environmental components in the project	0

6.3.	Financing investments with negative environmental impacts	
a	Financing investments with negative and permanent impact on the environment	0
b	Financing investments with negative but temporary impact on the environment	12.5
c	The absence of financing investments with negative environmental impacts	25
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6.4.	Indirect effects of financed investments	
a	Indirect effects on environment and social area of financed investments are predominantly positive	25
b	Indirect effects on environment and social area of financed investments are predominantly neutral	12.5
c	Indirect effects on environment and social area of financed investments are predominantly negative	0
